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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,961	10/31/2003	Sivakumar Ramasamy	0275M-000666/COB	8815
27572	7590	05/23/2006		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER SHARP, JEFFREY ANDREW	
			ART UNIT 3677	PAPER NUMBER

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/698,961	<b>Applicant(s)</b> RAMASAMY ET AL.	
	<b>Examiner</b> Jeffrey Sharp	<b>Art Unit</b> 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-27,29-31,33-41 and 48-52 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10-18,23-27,29-31 and 33-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

[1] This action is responsive to Applicant's remarks/amendment filed on 24 February 2006 with regard to the Official Office action mailed on 24 October 2005.

#### ***Status of Claims***

[2] Claims 1, 2, 4-8, 10-27, 29-31, 33-41, and 48-52 are pending. Claims 19-22 and 48-52 are withdrawn from consideration

#### ***Claim Objections***

[3] Claim 18 was previously objected to because of informalities. Applicant has successfully addressed these issues in the amendment filed on 24 February 2006. Accordingly, the objection to claim 18 has been withdrawn.

#### ***Claim Rejections - 35 USC § 102***

[4] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

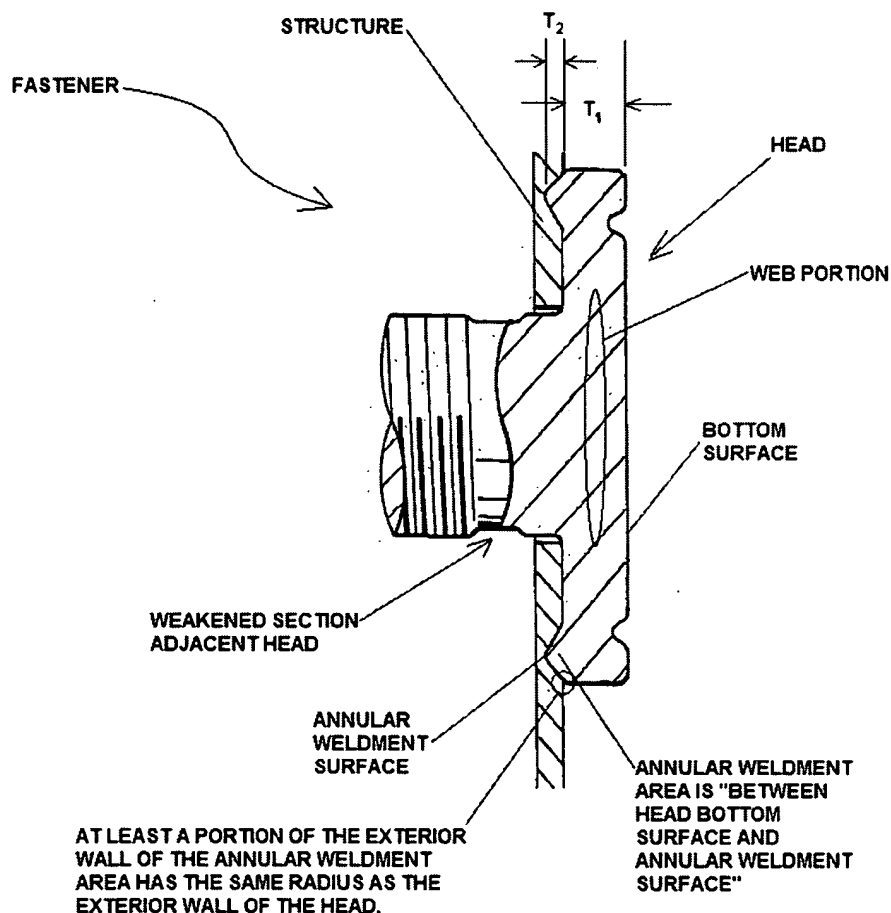
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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[5] Claims 1, 2, 4, 5, 8, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Arino et al. US-4,689,958.

In short, and in its broadest reasonable interpretation, Arino et al. teaches a stud to structure construction comprising a fastener having a head with web portion, a shank having a weakened portion adjacent the head, and an annular weldment area between an annular weldment surface and a bottom surface of the head. The annular weldment area has a second thickness less than and approximately 20-35% of a first thickness between a top and bottom surface of the head. Moreover, in its broadest sense, at least a portion of an exterior wall of the annular weldment area has a radius equaling that of an exterior wall of the head.



As for claim 2, the examiner notes that the Arino et al. reference fails to teach the *entire* exterior wall of the annular weldment area to have the same radius as an exterior wall of the head. However, in its broadest reasonable interpretation, the reference does show at least an outer peripheral end portion of the exterior wall to have the same radius as the exterior wall of the head.

As for claim 11, it is inherent that the shank taught by Arino et al. has a first failure load less than a second failure load of the web. This is due to the well-accepted engineering principle that a lesser cross-sectional area of the same solid shape would fail sooner than a larger cross-sectional area. The examiner takes official notice of this fact.

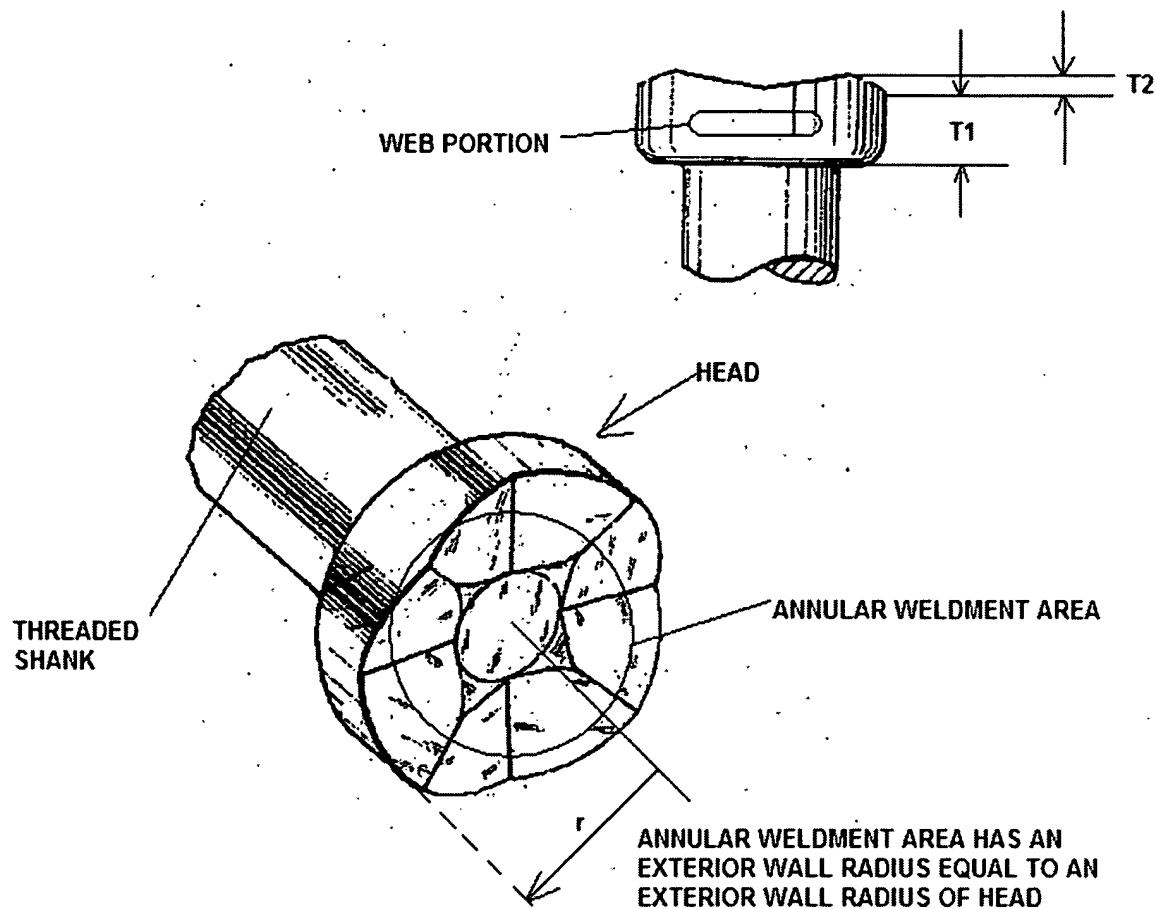
[6] Claims 1, 2, 5, 8, 10, 11, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Logan US-3,279,517.

In short, and in its broadest reasonable interpretation, Logan teaches a weldable fastener comprising a head with web portion, a shank, and an annular weldment area between an annular weldment surface and a bottom surface of the head. The annular weldment area has a second thickness less than and approximately 20-35% of a first thickness between a top and bottom surface of the head. An exterior wall of the annular weldment area has a radius equaling that of an exterior wall of the head. The annular weldment surface is "substantially" flat.

"Substantially" is a broad term. --*In re Nehrenberg (CCPA) 126 USPQ 383*.  
"Substantially" the same as" and "substantially corresponding to" imply clearly that something less than exact correspondence is required. --*Performed Line Products Co. v. Fanner Mfg. Co.*

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(DC NOhio) 124 USPQ 288. There is more flexibility in "substantially coincident" than in "coincident" alone. --J.R. Clark Co. v. Geuder, Paeschke & Frey Co. (CA 7) 119 USPQ 161.



[7] Claims 23-25, 29, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Irimies US-5,493,833.

In short, and in its broadest reasonable interpretation, Irimies teaches a weld fastener having an elongated shank, enlarged head portion, substantially annular portion extending from the head opposite the shank, and having a second thickness (h) of less than 50% than, and more

preferably 20-35% of the thickness of the head thickness (H-h). This is clearly demonstrated in Chart A of Irimies. Chart A of Irimies also satisfies the limitations of claims 29 and 30 when inches are converted into millimeters.

[8] Claims 23, 24, 25, 26, 29, 30, 31, 33, 34, 35, 37, 38, 39, 40, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Bregenzer GB 2065011 A.

In short, and in its broadest reasonable interpretation, Bregenzer teaches an automotive vehicle apparatus comprising a laminate panel having a polymer layer between first and second metallic layers (page 1 lines 30-32), a ring arc stud welded to the laminate panel (inherent), said stud being welded via an annular weldment area (28) having a second thickness less than a first head (20,24) thickness. The stud comprises a web portion (22), and shank (10), which may be threaded (page 1 lines 56-57). It is inherent that the smaller cross-section shank (10) has a first failure load less than a second failure load of the larger cross-section web (22). Bregenzer teaches that the annular weldment area may extend so that its exterior wall has at least a portion of its radius equal to an exterior wall radius of the head (supported by page 2 lines 12-13). As for claim 23, the welding edge of annular weldment area (28) creates a flat planar face parallel to an upper lateral plane of the head (20,24) prior to welding. As for claims 29 and 30, the head (20,24) thickness is at least 2.0 mm (supported by page 2 line 43, which states "height of 3mm").

***Claim Rejections - 35 USC § 103***

[9] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[10] Claims 1, 2, 4-8, 10-12, 14-18, 23-27, 29-31, and 33-41 are rejected under 35 U.S.C.

103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and WO 03/004883 A1. See annotated figures below.

In short, and in its broadest reasonable interpretation, the WO 03/042554 A1 reference teaches a weldable fastener having a stud to structure construction, said fastener having an externally threaded shank, a head with web portion having a first head thickness that is greater than a second weldment area thickness; wherein the radius of an exterior wall of the head is equal to the radius of at least a portion of an exterior wall of a weldment area located on a side of the head opposite the shank. The reference states that the shank has a first failure load less than a second failure load of the web. This would be clearly apparent and/or appreciated by those of ordinary skill in the art, because the web has a larger cross-sectional area than the shank. The weldment area taught by the WO 03/042554 A1 reference has a third failure load greater than said first failure load of the shank, since it, too, has a larger cross-sectional area than the shank. The shank possesses a weakened section positioned near the head. The weldment area has a second head thickness that is less than 50% and preferably about 20-35% that of the thickness between a top and bottom surface of the head.



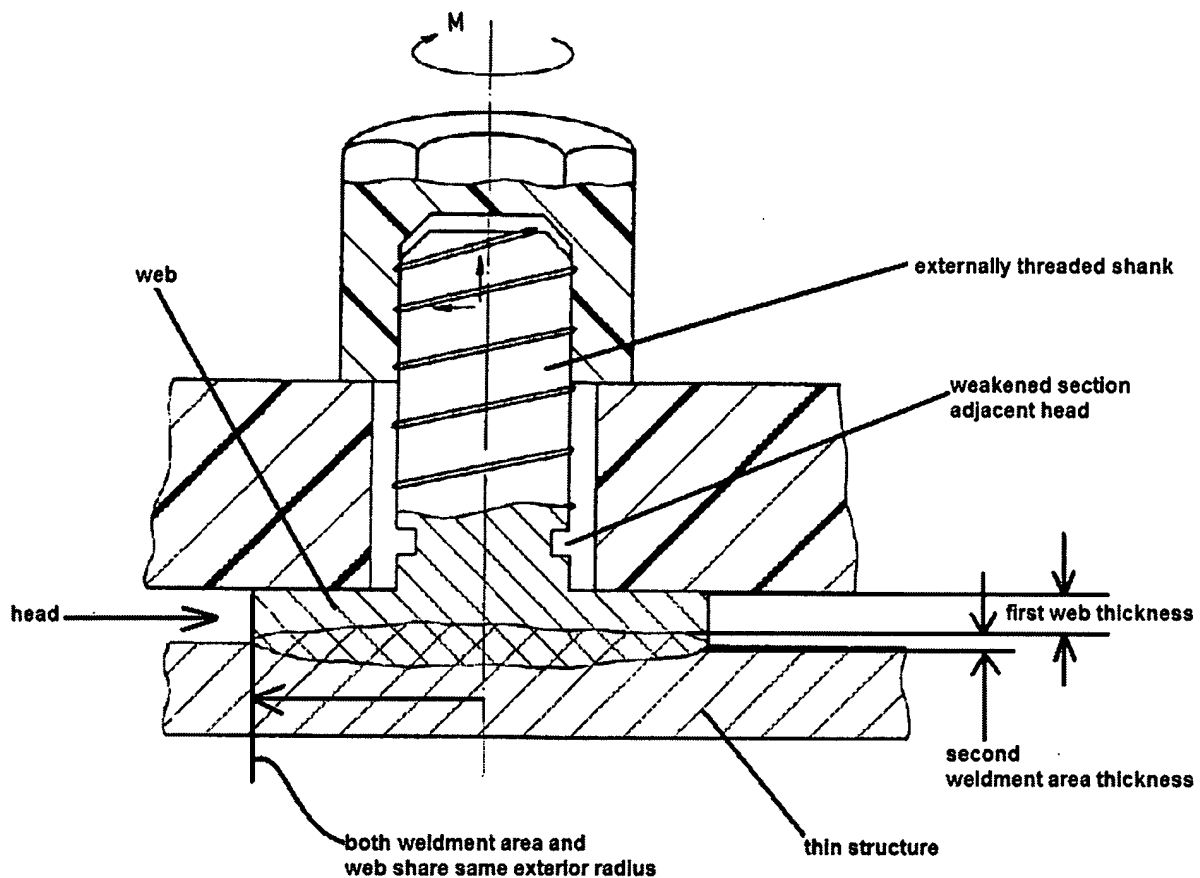


Figure 1 of WO 03/042554 A1

Moreover, it appears that the present invention has no significant performance improvement over the prior art WO 03/042554 A1 reference, as shown below. Absent further evidence from Applicant, the Examiner cannot see how the claimed invention "performs differently" *after welding*, even though the welding surface may differ *prior to welding*. Each and every first, second, third, and fourth failure load appears to be same when compared relative to each other as shown in the charts below.

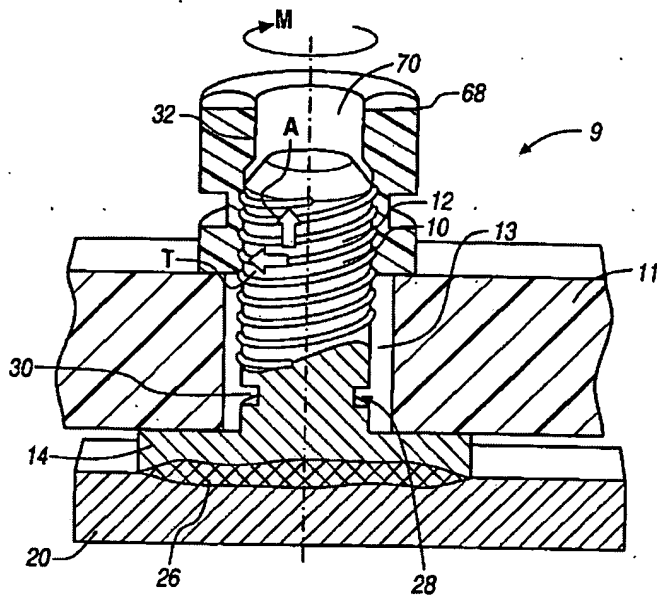


Figure 4 of Present Invention

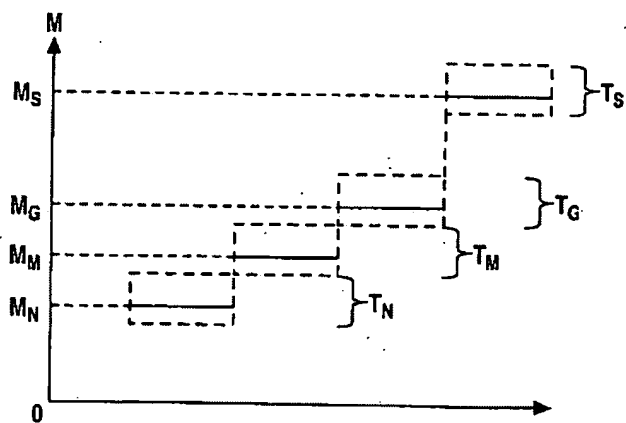


Figure 7 of Present Invention

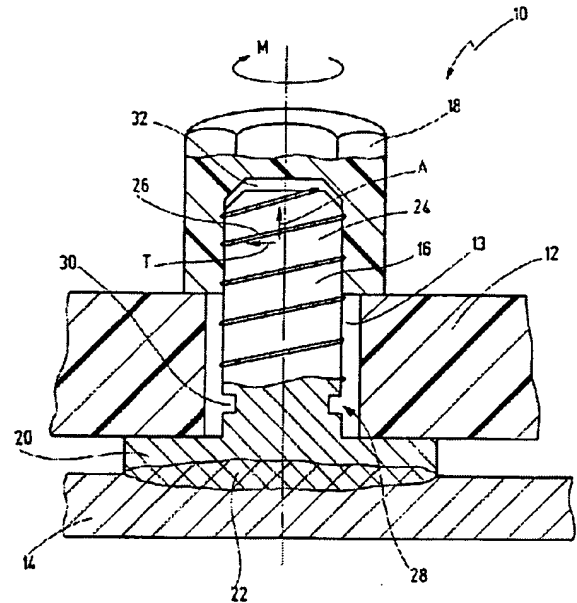


Figure 1 of WO 03/042554 A1

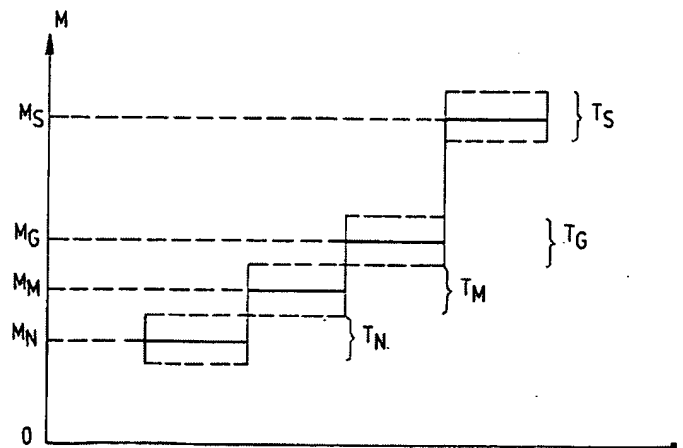


Figure 4 of WO 03/042554 A1

However, the WO 03/042554 A1 does appear to be silent about an *annular* weldment area being less than 50% and preferably between 20-35% the thickness of the head *prior to welding*.

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Bregenzer suggests to one of ordinary skill that an ***annular*** weldment area is advantageous for studs used on thin laminate metal panels having a polymer layer between first and second metallic layers. The annular weldment area (28) taught by Bregenzer is clearly shown to be less than 50% and preferably between 20-35% the axial thickness of the head (20,24) *prior to welding*. Bregenzer suggests that the annular weldment area may extend all the way to the exterior radius of the head so that its exterior radius equals the exterior radius of the head (supported by page 2 lines 12-13).

Related art WO 03/004883 A1 shows a weld fastener assembly having most of the claimed features, and also including an ***annular*** weldment area *prior to welding*. The exterior radius of the annular weldment area is equal to the exterior radius of the fastener head. The welding edge of the annular weldment area is substantially flat along a lateral plane substantially parallel to a lateral plane of the head, prior to welding. The reference states that the distance (labeled 3) between a panel (4) and structure (2) is "*a given distance*" and/or a "*predeterminable defined spacing*". The examiner takes the position that these phrases would convey to those of ordinary skill in the art, that the distance is variable and subject to change. Therefore, it would have been obvious to adjust the thickness of an annular weldment area (5) to provide an optimum/desired spacing between a panel and structure. The mere fact that Applicant claims the thickness of the weldment area as a specific relative size limitation with respect to the thickness of the head is not important, because those of ordinary skill in the art would appreciate from the WO 03/004883 A1 disclosure, the thickness is set so as to provide "a given distance" between said panel and structure.

As for claims 14-17, 18, 31, and 37-41, the device taught by WO 03/042554 A1 is to be used in automotive applications, and particularly for use with auto body panels. Applicant submitted NPL suggests that metal/polymer laminates such as Hylite® are well-known in the automotive industry as advantageous equivalents to conventional sheet metal body panels, because they are lighter in weight, provide better insulation, and possess improved sound and vibration damping characteristics. Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to advantageously substitute a conventional automotive body panel with a laminate sheet metal structure for the abovementioned advantages. The functional limitations and interaction between the metal panels being fused together is an inherent result of welding said metal laminate sheets as evidenced by the below illustration:

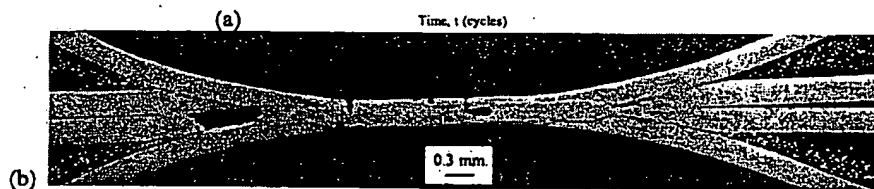


Fig.4: (a) V(t) and I(t) plots obtained during resistance welding of two HSSA sheets (cycle time = 200 ms) and (b) micrograph of a polished section through such a weld.

T.W. Clyne et al., "Development of a New Ultra-Light Metallic Sheet Material", January 2002, Research Proposal for Cambridge-MIT Institute.

Therefore, in view of the above references, it would have been obvious to one of ordinary skill in the art, at the time of invention, to:

- 1) modify the panel (14) taught by the WO 03/042554 A1 reference to be made of metal laminate material having a polymer sandwiched between first and second metallic layers as suggested by Bregenzer and evidenced by the Applicant submitted NPL, since it is well-known that such laminates are lighter in weight, provide better insulation, possess improved sound and

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vibration damping characteristics, and are generally accepted as being advantageous substitutes for conventional sheet metal panels.

2) modify the weldment area taught by the WO 03/042554 A1 reference to be annular as suggested by EP 1060826 A1 and WO 03/004883 A1, in order to provide the fastener with an improved means for welding to desirable metal laminate sheets.

3) modify the thickness of the annular weldment area as suggested by WO 03/004883 A1, so as to achieve the desired spacing results between a panel and structure. One of ordinary skill in the art would readily appreciate that varying the thickness of the weldment area would achieve expected results; said expected results being the desired spacing between a panel (4) and structure (2) to be joined together. Applicant is reminded that it is not required that the prior art disclose or suggest the properties newly-discovered by an applicant in order for there to be a prima facie case of obviousness. *See In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897, 1905 (Fed. Cir. 1990). In the instant case, Applicant appears to deem a thinner weldment area (with respect to the head) as useful in preventing "burn through" during arc welding to thin substrates.

However, this alleged newly-discovered property is inherent to the disclosure of WO 03/004883 A1, which suggests that a thinner weldment area would be useful in decreasing the spacing between a panel (4) and structure (2).

As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. *See In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970). The test for obviousness is not whether the features of a

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secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F. 2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In this regard, a conclusion of obviousness may be based on common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

The standard to be applied in all cases is the "preponderance of the evidence" test. In other words, an examiner should reject a claim if, in view of the prior art and evidence of record, it is more than likely than not that the claim is unpatentable.

[11] Claim 13 is rejected under 35 U.S.C. 103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and WO 03/004883 A1 as discussed above, in even further view of Sherry et al. US-5,579,986.

In short, WO 03/042554 A1 teaches a nut having a fourth fracture load less than a third failure load of an annular weldment area. The reference further teaches towards weakening the nut so that it is ensured that the nut fractures before the stud (paragraph [0008] line 15 and paragraph [0013] lines 7-13).

However, WO 03/042554 A1 fails to disclose expressly, the nut to have an exterior groove.

Sherry et al. shows a nut (12) for use in a similar application; said nut being secured to a weld stud having a weakened section. The nut has an exterior groove (between flange 21 and body 22), which serves to weaken the nut and better suits the nut for a swaging process.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art from the disclosure of Sherry et al., to employ a nut having an exterior groove in a weld fastener assembly, said nut having a fourth failure load less than a third failure load of an annular weldment in order to ensure that the nut fractures before the stud.

***Response to Arguments/Remarks***

[12] Claims 1-3, 5, and 8-10 were previously rejected under 35 U.S.C. 102(b) as being anticipated by EP 1060826 A1.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are moot in view of the new grounds of rejection presented in this Office Action. The EP 1060826 A1 reference fails to show a thickness of the annular weldment area in an *axial* direction (i.e., "thickness between the head bottom surface and an annular weldment surface") being less than 50% of the first head thickness. Therefore, as amended, the examiner feels that EP 1060826 A1 no longer anticipates the abovementioned claims.

[13] The examiner appreciates Applicant's submission of case law concerning the inappropriate use of drawings as prior art. However, the examiner takes the position that the above rejections over prior art drawings are *proper*.

Applicant has relied on the portion of the MPEP, which suggests that drawings in a prior

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art reference may not be used to anticipate particular sizes, precise proportions, specific dimensions, and quantitative values based on actual measurements absent a scale. The examiner agrees that it would be improper, for instance, to take direct measurements with a ruler (e.g., "1.5 inches", "3 mm") from a prior art drawing that has no scale on it in an attempt to show that said drawing anticipates the measurements.

However, the relative size dimensions of the prior art drawings are clearly shown, and although such relative comparisons are not described expressly in the specification, the drawings would have expressed to those of ordinary skill in the art at the time the invention was made, an annular weldment area having a thickness less than a web thickness of a fastener head.

Drawings and pictures can anticipate claims if they clearly show the structure which is claimed. In re Mraz, 455 F.2d 1069, 173 USPQ 25 (CCPA 1972). The courts have stated: "the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art."

Applicant also fails to address the fact that the MPEP provides that when the reference is a utility patent, it does not matter that the feature shown is unintended or unexplained in the specification.

[14] Claims 1-12, 23-27, and 29-30 were previously rejected under 35 U.S.C. 103(a) as being unpatentable over Soyer DE 4,222,664 A1 in view of Arino et al. US-4,689,958.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are moot in view of the new grounds of rejection presented herein.



[15] Claims 14-18, 31, and 33-42 were previously rejected under 35 U.S.C. 103(a) as being unpatentable over Soyer DE 4,222,664 A1 in view of Arino et al. US-4,689,958 and Bregenzer et al. GB 2,065,011 A1.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are moot in view of the new grounds of rejection presented herein.

[16] Claim 13 was previously rejected under 35 U.S.C. 103(a) as being unpatentable over Soyer DE 4,222,664 A1 in view of Arino et al. US-4,689,958 and in even further view of Bidefeld US-5,054,980.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are moot in view of the new grounds of rejection presented herein.

[17] Claims 6, 7, 11, and 12 was previously rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1060826 A1.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are moot in view of the new grounds of rejection presented herein.

### ***Conclusion***

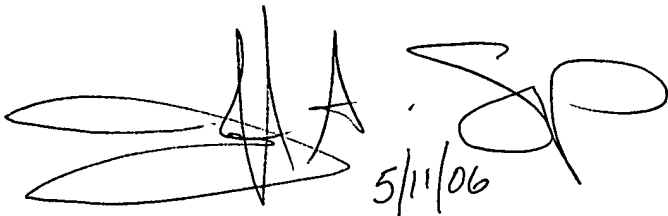
[18] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 5:30 am - 4:00 pm Mon-Thurs.

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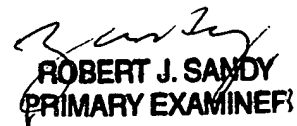
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



Handwritten signature and date 5/11/06



ROBERT J. SANDY  
PRIMARY EXAMINER